FACILITY STATUS CHANGE FORM

Date Submitted:	Area:	Control #:
12-5-2012	100-N	D4-100N-0026
Originator:	**Facility ID:**	
David Warren	116-N Exhaust Air Stack	
Phone:	**Action Memorandum:**	
(509) 539-6040	100-N Ancillary Facilities	

This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

☐ All D4 operations required by action memo complete.

☒ D4 operations required by action memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:

Deactivation: Utility isolation, if necessary, was performed on the 116-N Exhaust Air Stack prior to beginning facility decontamination.

Decontamination and Decommissioning: The following hazardous materials, if present, were removed prior to facility demolition: batteries, light bulbs, oils, grease, asbestos-containing material (ACM), mercury, refrigerant and polychlorinated biphenyls. Hazardous material removal and waste disposition was performed in accordance with *Removal Action Work Plan for 100-N Ancillary Facilities*, DOE/RL-2002-70, Revision 2 (RAWP).

Demolition: Demolition of the above-grade structures began in September 2008 with explosive demolition and loadout of the above grade structure. Below grade demolition of the structure and loadout of the remaining debris was completed in January 2011. The contaminants of concern for demolition were radionuclides. Radiological and Industrial Hygiene survey results are included in Attachment 1. There were no anomalies encountered during the demolition of the 116-N Facility.

Description of Deferral (as applicable):

Verification sampling of the soils underlying the 116-N Exhaust Air Stack is being deferred to Field Remediation (FR) for inclusion as part of verification sampling of the adjacent collocated Waste Information Data System (WIDS) sites 100-N-87, UPR-100-N-9, and UPR-100-N-14; and WIDS subsite 100-N-102:1.

Section 2: Underlying Soil Status

☐ No waste site(s) present. No additional actions anticipated.

☒ Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.

☐ Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned.

Cleanup and closeout to be addressed under Record of Decision.

Description of Current/As-Left Conditions:

The above and below grade structures of the 116-N Exhaust Air Stack were completely demolished and removed, along with complete removal of WIDS site 100-N-87, UPR-100-N-9, and UPR-100-N-14; and WIDS subsite 100-N-102:1. The portion of WIDS site 100-N-84:3 that was present within the 116-N excavation layback was likewise completely removed. The post-demolition photographs and the February 9, 2011 Civil Global Positioning System (GPS) Survey depict the final condition of the area.

The Sampling Determination Form (Attachment 5) is part of a process implemented by the *Removal Action Work Plan for 100-N Area Ancillary Facilities*, DOE/RL-2002-70, Revision 3. The Sampling Determination Form for the 116-N Exhaust Air Stack (SDF-100N-010) represents a regulatory agreement between DOE and the Lead Regulator (Ecology), and indicates whether the requirements of the Action Memorandum have been met with respect to demonstrating that cleanup criteria, MTCA Method B for Chemical Constituents and 15 mRem above Hanford Site background for

FACILITY STATUS CHANGE FORM

Radiological Constituents, have been achieved for soils remaining after facility removal. Further action will not be required by the D4 organization to demonstrate that cleanup criteria have been met for the 116-N Exhaust Air Stack. However, further actions will be performed by the Field Remediation Organization for remediation and closeout of the adjacent and collocated WIDS sites in accordance with the CERCLA Record of Decision (ROD) and remedial action work documents. The 116-N Excavation has not been backfilled and currently remains open. The excavation will undergo verification sampling by FR as part of closeout for 100-N-87, 100-N-102:1, UPR-100-9, and UPR-100-14.

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):

Five WIDS sites are in the general proximity of the 116-N Exhaust Air Stack. Excavation for removal of the 116-N Exhaust Air Stack resulted in the complete removal of WIDS sites 100-N-87, UPR-100-N-9, UPR-100-N-14, and WIDS subsite 100-N-102:1; as well as partial removal of WIDS subsite 100-N-84:3. The verification sampling for these waste sites will be covered by the "Work Instruction for Verification Sampling of the 100-N-87, 116-N Ventilation Stack Piping and French Drain; UPR-100-N-9, 119-N Cooling Water Drain Line Leak; UN-100-N-9; UPR-100-N-14, 119-N Drain System Leak, UN-100-N-14; and 100-N-102:1, 100-N Potentially Contaminated French Drains," 0100N-WI-G0028 Rev. 1.

Section 3: List of Attachments

1. Facility Information
2. Photographs
3. GPERS Surveys
4. GPS Surveys
5. Sampling Determination Form for the 116-N Exhaust Air Stack (SDF-100N-010)

Rudy Guercia	1/2/2013
DOE-RL	Date
Nina Menard	1/8/2013
Lead Regulator ☐ EPA ☒ Ecology	Date

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D4 EPL: Clay McCurley, X5-50
Sample Design/Cleanup Verification: Megan Proctor, H4-22
FR Engineering: Rich Carlson, N3-30
FR EPL: Dan Saueressig, N3-30

Attachment 1: Facility Information (6 pages)

D4 Project Facility Completion Form

Facility Information

Introduction

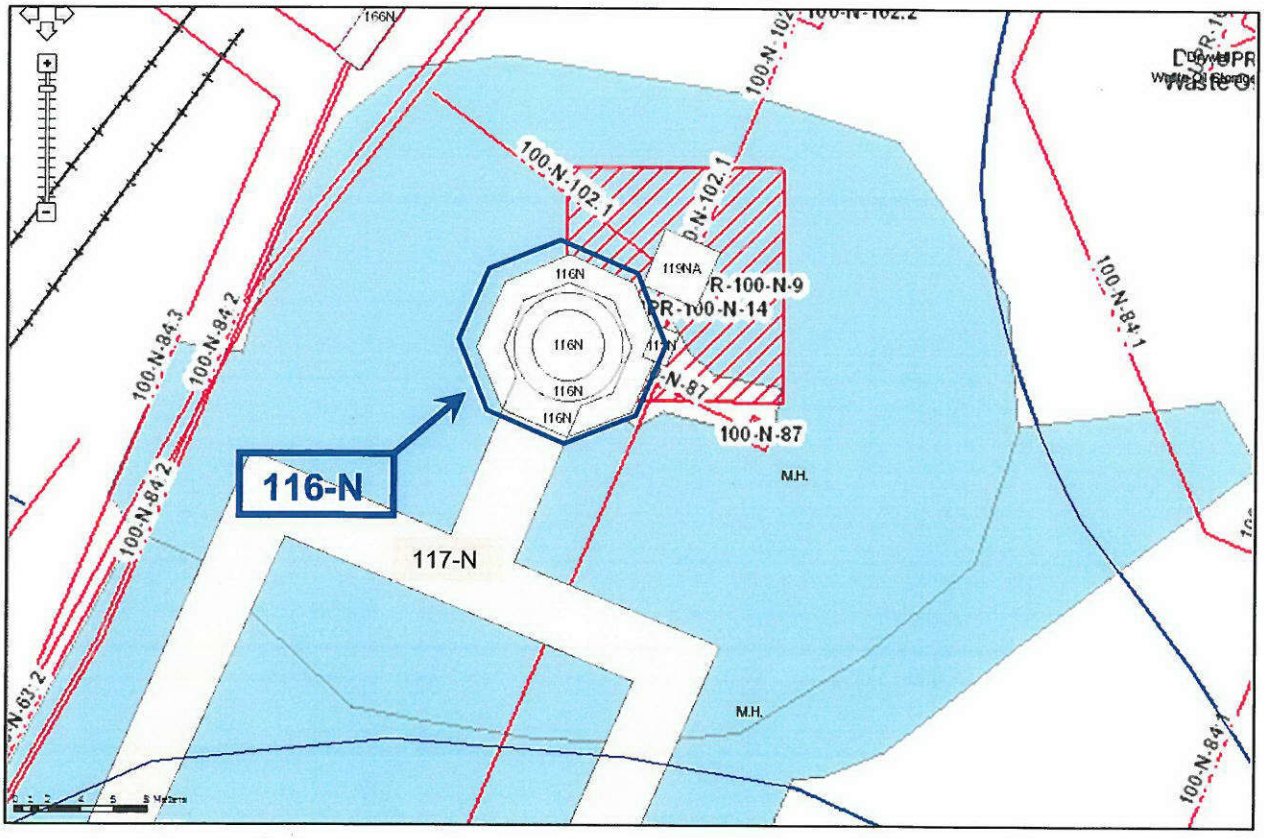
This document provides information regarding the history, characterization, and final status at the completion of deactivation, decontamination, decommissioning, and demolition activities of the 116-N Exhaust Air Stack, formerly located at the 100-N Area.

Site Information

The 116-N Exhaust Air Stack served as a ventilation stack for the 105-N Reactor at 100-N. The Reactor Stack was constructed in 1962 as part of the original N Reactor complex, and served an essential function of the 105-N ventilation system, designed to prevent the spread of radioactive contamination. The Reactor Stack was set into a steel-reinforced octagonal concrete base that was 33.5 feet wide. The visible portion of the stack was 23.5 feet in diameter at its base and 201 feet tall. Ventilation air from potentially contaminated operating zones in the 105-N Reactor passed through high-efficiency particulate air (HEPA) filters located in the 117-N Air Filter Building before being discharged to the atmosphere through this stack.

A map of the 116-N Exhaust Air Stack is included in Figure 1. Photographs are included in Attachment 2.

Figure 1. Location of the 116-N Exhaust Air Stack



Radiological and Industrial Hygiene Surveys

Table 1 below summarizes the radiological and industrial hygiene scoping surveys performed at the 116-N Exhaust Air Stack.

Table 1: Summary of Radiological and Industrial Hygiene Scoping Samples/Surveys

Type	Quantity	Method Detection Limits	Results
Radiological Scoping Surveys	1 Survey	Beta-gamma – 1,000 removable/ 5,000 fixed [a] Alpha – 20 removable/ 500 fixed [a]	Removable beta-gamma contamination was detected at the 116-N Exhaust Air Stack during its scoping survey. Historical radiological surveys associated with the 116-N Exhaust Air Stack detected removable beta-gamma and removable alpha radiological contamination.
Industrial Hygiene Scoping Surveys	1 Survey	N/A	Based on historical documentation, no industrial hygiene concern was associated with the 116-N Exhaust Air Stack. There was no credible path for beryllium to have been present at the 116-N Exhaust Air Stack.
[a] – dpm/100 cm^2			

Post Demolition Radiological Surveys

In-process and post-demolition health and safety-based radiological surveys were routinely performed for worker protection measures and to identify the proper posting and boundaries of the 116-N Facility during Washington Closure Hanford (WCH) demolition operations. A summary of all such data would prove insignificant as the facility footprint was turned over to the WCH Field Remediation organization (FR) for sampling of collocated Waste Information Data System (WIDS) sites for verification that cleanup goals have been met for the soils below. Down-posting radiological surveys performed at the 116-N excavation are however summarized in Table 2 below.

Global Positioning Environmental Radiological Surveyor (GPERS) down-posting surveys were performed at the site in October of 2012. The surveys indicated that no contamination was present within the 116-N excavation. The area was transferred to FR to perform verification sampling of the adjacent, collocated, WIDS sites. The GPERS surveys are included in Attachment 3. The surveys are summarized in Table 2 below.

Table 2: Summary of Radiological Down-Posting Surveys

Type	Quantity	Method Detection Limits	Results
Work Progress Down-Posting Radiological Surveys	9 Surveys	Beta-gamma – 1,000 removable/ 5,000 fixed [a] Alpha – 20 removable/ 500 fixed [a]	Seven of these nine surveys pertained to the above grade demolition of the 116-N Exhaust Air Stack. Only one of these seven surveys detected radiological contamination, which was removable beta-gamma slightly above the method detection limit. This did not preclude the surrounding area from being down-posted. The remaining two surveys pertained to the excavation and below grade demolition of the 116-N Exhaust Air Stack. Only one of these two surveys detected radiological contamination, which was removable and direct beta-gamma. This did not preclude the surrounding area from being down-posted from a high contamination area/radiation area to a contamination area/radiation area.
GPERS Surveys	2 Surveys	N/A	5,921 data points were taken at the 116-N footprint. All results were less than 1.5 times the background count. It should be noted that readings that are under 1.5 times the background count are considered to be insignificant. The GPERS survey maps are included in Attachment 3.
[a] – dpm/100 cm^2			

Facility & Waste Characterization Sampling

A certified asbestos inspection was performed at the 116-N Facility in October of 2005. Following the inspection, four samples of potential asbestos-containing piping insulation were taken. An additional sample of the same material was taken at a later date. Asbestos was detected in one of the first four samples. Table 3 below summarizes the asbestos characterization sampling at the 116-N Exhaust Air Stack.

Table 3: Summary of Asbestos Samples

Type	Quantity	Method Detection Limits	Results
Asbestos – Thermal System Insulation and Miscellaneous Material	5 Samples	1% asbestos content	All five samples were taken from an insulated line on the 116-N Exhaust Air Stack. One of these samples was determined to contain asbestos above the method detection limit.

The remainder of characterization sampling performed at the 116-N Exhaust Air Stack was conducted to determine the acceptability of material disposal at the Environmental Restoration Disposal Facility (ERDF). Table 4 below summarizes the samples that were taken for such waste management purposes. These samples should not be confused with verification sampling that will be performed by FR for closure of collocated WIDS sites 100-N-87, UPR-100-N-9, and UPR-100-N-14; and WIDS subsite 100-N-102:1.

Table 4: Summary of Additional Waste Management Samples

HEIS #	Sample Date	Logbook	Page	Description	Location	Location Detail
J16VJ5	5-6-08	EL-1516-13	2-8	pipe sludge	116-N	Floor drain bottom of 116-N
J16VJ6	5-6-08	EL-1516-13	2-8	concrete	116-N	Stack wall
J180F8	3-9-09	EL-1516-14	48-54	concrete	116-N	Stack Floor Near Drain
J180F9	3-9-09	EL-1516-14	48-54	concrete	116-N	Stack Wall, Area of Impingement
J180H3	3-9-09	EL-1516-14	48-54	water	116-N	116-N Floor Drain
J181C0	3-9-09	EL-1516-14	48-54	pipe sludge	116-N	116-N Floor Drain
J181C1	3-9-09	EL-1516-14	48-54	concrete	116-N	Stack Floor Near Drain
J181C2	3-9-09	EL-1516-14	48-54	concrete	116-N	Stack Wall, Area of Impingement
J181C6	3-9-09	EL-1516-14	48-54	water	116-N	116-N Floor Drain

Demolition

Above grade demolition of the 116-N Exhaust Air Stack was completed in August of 2008. Below grade demolition, which included the stack foundation, was completed in January of 2011. The debris was loaded into roll-off containers and sent to the ERDF for disposal.

Contaminants of Concern

Radionuclides were the only contaminants of concern for demolition of the 116-N Exhaust Air Stack.

Civil Survey Information

A pre-demolition Global Positioning System (GPS) civil survey was performed at the 116-N Exhaust Air Stack in December of 2006. A post-demolition GPS civil survey was performed at the 116-N excavation in July of 2011. Copies of these GPS surveys are provided in Attachment 4.

Anomalies

No anomaly was encountered during deactivation or demolition of the 116-N Exhaust Air Stack.

Status of Associated/Adjacent WIDS Sites

Table 5 below provides information on the WIDS sites that were associated with, and/or adjacent to, the 116-N Exhaust Air Stack. Figure 1 of this attachment shows the excavation layback in light blue, the excavation toe in tan, and the adjacent WIDS site locations in red with black type.

Table 5: Associated/Adjacent WIDS Sites for 116-N

Site Number	Site Name	Description & Status	Affected by D4 Activities
100-N-84:3 (subsite)	100-N Area Filtered and Potable Water Pipelines	This subsite consists of pipelines that transported makeup, filtered, demineralized, and potable water. Classification: Accepted Reclassification: No Action	Yes: The portion of this subsite that was located within the 116-N excavation footprint was completely removed during excavation of 116-N. As this subsite has received a No Action reclassification status, no additional work is expected for the portion remaining outside of the 116-N excavation footprint.
100-N-87	116-N Ventilation Stack Piping and French Drain	This site consisted of the 116-N stack drain line and a French drain. Condensate from the influent filtered air stream accumulated on the inside of the 116-N stack. The stack contained a floor drain that discharged the condensate to the French drain. The French drain was located approximately 45 feet east of 116-N and approximately 25 feet below grade. Classification: Accepted	Yes: This site was completely removed during excavation of 116-N.
100-N-102:1 (subsite)	119-N Exhaust Air Monitoring Building Drain Transfer Lines	This subsite consisted of piping associated with potentially-contaminated French drains that received waste from the 119-N Exhaust Air Monitoring Building. Classification: Accepted Reclassification: No Action	Yes: This subsite was completely removed during excavation of 116-N. A portion of the 100-N-102 WIDS site remains outside of the 116-N excavation footprint. This portion has been assigned subsite number 100-N-102:2 and will be closed out by FR.
UPR-100-N-9	119-N Cooling Water Drain Line Leak	This site consisted of an exploratory excavation hole that had received contaminated water from the 119-N cooling water drain line during a valve rupture. Classification: Accepted	Yes: This site was completely removed during excavation of 116-N.
UPR-100-N-14	119-N Drain System Leak	This site consisted of contaminated soil, located immediately northeast of the 116-N stack, that was created by a release of contaminated water from the 119-N drain. Classification: Accepted	Yes: This site was completely removed during excavation of 116-N.

The Stewardship Information System (SIS) and WIDS reports for these waste sites will be updated when the Cleanup Verification Package (CVP) is written and the Waste Site Reclassification Form (WSRF) is approved.

Final Building Status and Underlying Soil

The 116-N Exhaust Air Stack was completely demolished by February of 2011. The debris was loaded into roll-off containers and shipped to the Environmental Restoration Disposal Facility (ERDF) for disposal.

During demolition and below grade excavation of the 116-N Exhaust Air Stack, adjacent WIDS sites 100-N-87, UPR-100-N-9, and UPR-100-N-14 were removed in entirety. WIDS subsite 100-N-102:1 was likewise removed in entirety. Additionally, the portion of WIDS subsite 100-N-84:3 that existed within the 116-N excavation footprint was removed in entirety. There are remaining 100-N-84:3 pipelines within the 100-N Area, however no additional work is expected for these pipelines because this subsite has received a No Action reclassification status. There are no other WIDS sites within the 116-N excavation footprint.

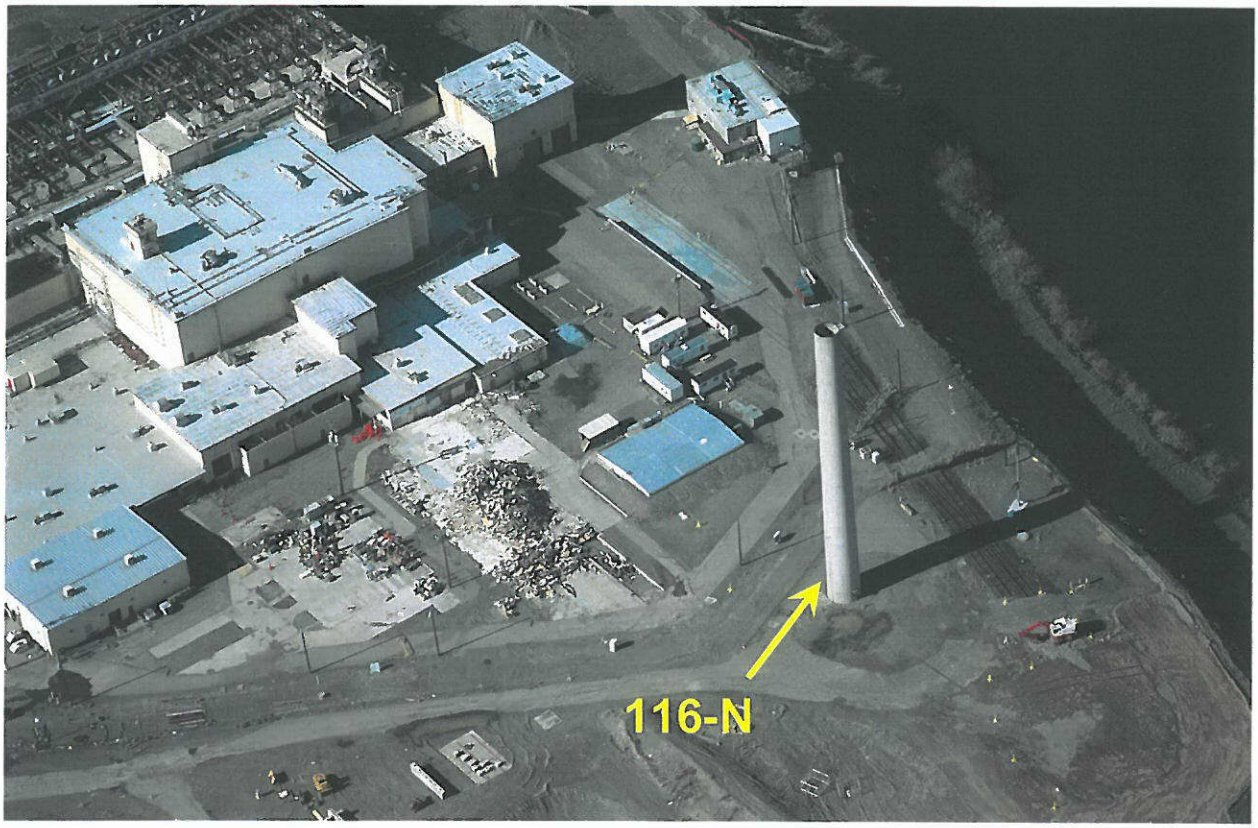
The 116-N excavation has not been backfilled and currently remains open. The excavation will undergo verification sampling by FR as part of the closeout process for 100-N-87, 100-N-102:1, UPR-100-N-9, and UPR-100-N-14.

No anomaly was encountered during demolition or removal of the 116-N Exhaust Air Stack. GPERS surveys and a visual inspection were performed at the 116-N excavation. No stained soil or radiological contamination was identified. Table 6 summarizes the contaminants of concern for 116-N demolition. Photographs are included in Attachment 2.

Table 6: Contaminants of Concern for Facility Demolition

Contaminant of Concern	Management Practice/Determination of No Impact to the Soil
Radionuclides	Radionuclides were the only contaminants of concern for demolition of the 116-N Exhaust Air Stack. Radiological controls were in place during 116-N demolition and below grade excavation. No anomaly or stained soil was identified during post-demolition visual inspection and the GPERS surveys of the excavation footprint did not detect radiological contamination. The GPERS survey maps are included in Attachment 3.

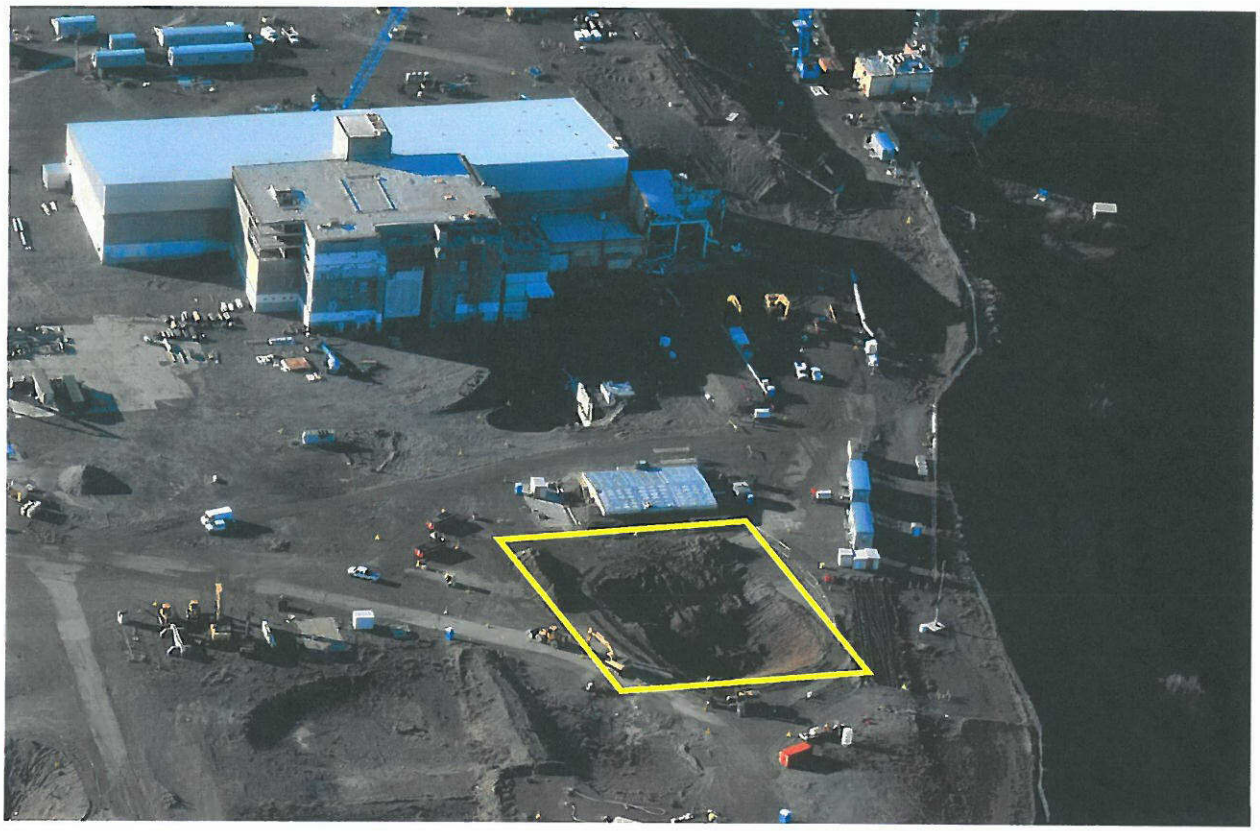
Attachment 2: Photographs (2 Pages)



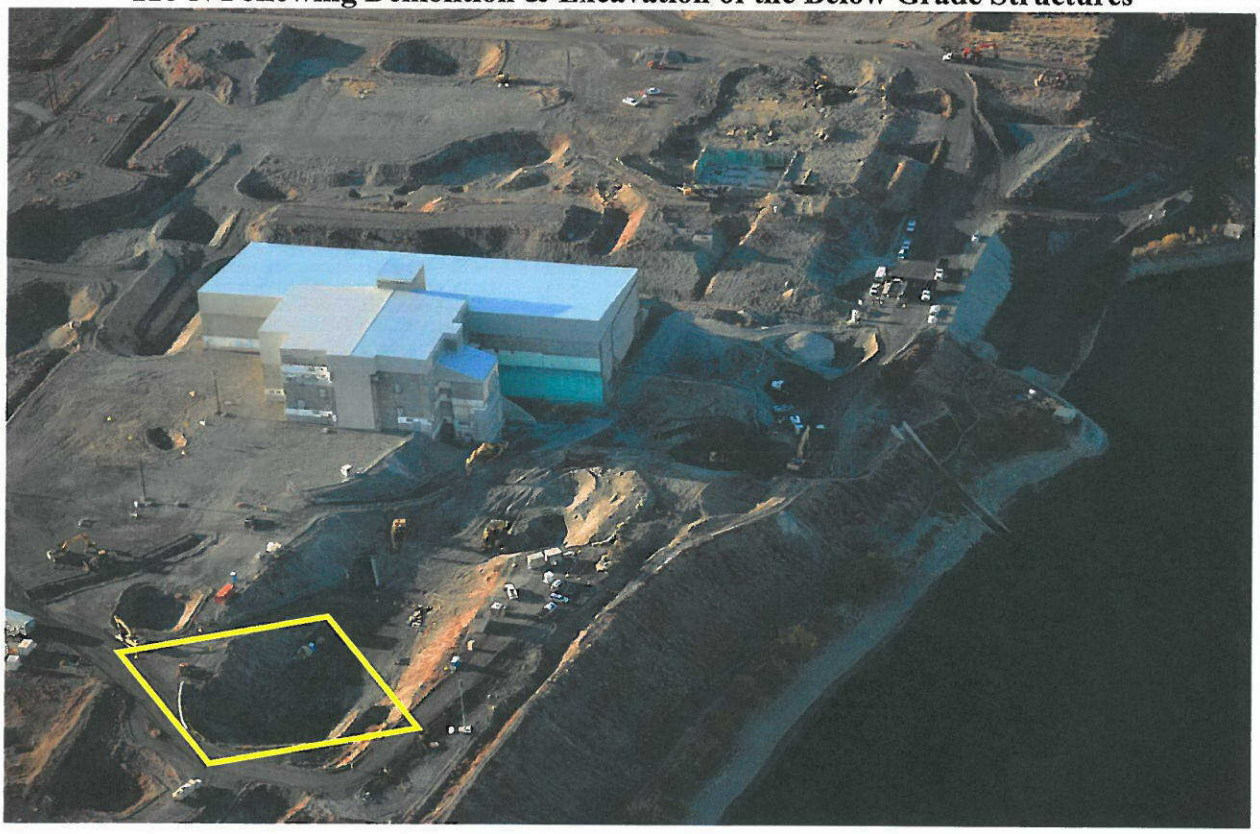
116-N Pre-Demolition

116-N Post-Demolition (Above Grade)

116-N Exhaust Air Stack Completion



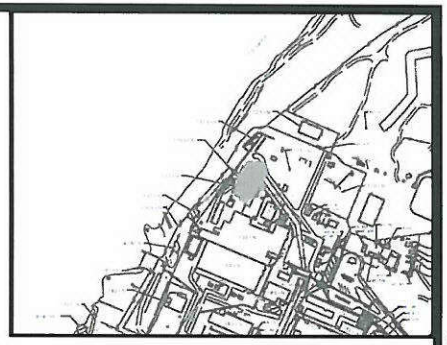
116-N Following Demolition & Excavation of the Below Grade Structures



116-N Excavation as it appeared in October 2012

Attachment 3: GPERS Surveys (2 Pages)

N



Site View

Bkg Location
625 meters SE
382 cpm

Copy

Legend

NET CPM

- × <573
- 573 - 5000
- 5000 - 10000
- 10000 - 25000
- 25000

Summary Statistics

Coverage File: N293A,B
Number of Data Pnts: 530
Type of Survey: beta
Max GCPM: 828
Avg Bkg CPM: 382
Survey Date: 10/19/2012
Area Surveyed: 3,025 m^2
Project File: ESRFRM120134B
Pdf File: ESRFRM120134BC

100N D4
116/117-N
GPERS Radiological Survey
Beta Track Map

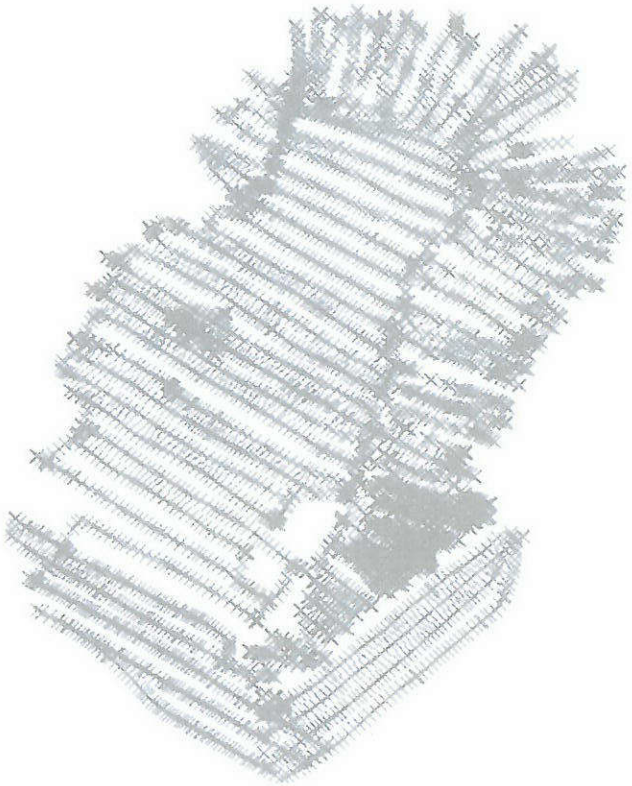
0 5 10 15 20 25 Meters

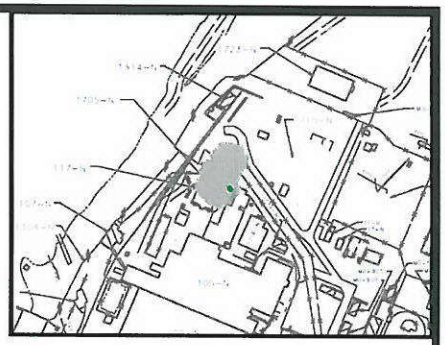
Environmental Excellence HANFORD

EBERLINE SERVICES HANFORD, INC.

Survey Map Prepared By Bruce Coomer, ESI

N





Site View

Bkg Location
622 meters SE
1102 cpm

Legend

NET CPM

- × <1.5 x bkg
- 11.5 x bkg - 5000
- 5000 - 10000
- 10000 - 25000
- 25000

Summary Statistics

Coverage File: N277, N291A
Number of Data Pnts: 5391
Type of Survey: gamma
Max GCPM: 2676
Avg Bkg CPM: 1226
Survey Date: 10/3,17,25/2012
Area Surveyed: 2,686 m^2
Project File: 100ND4_116_117
Pdf File: 100ND4_116_117_N

100N D4
116/117-N
GPERS Radiological Survey
Gamma Track Map

0 5 10 15 20 25 Meters

EBERLINE SERVICES

Survey Map Prepared By Bruce Coomer, ESI

116-N Exhaust Air Stack Completion

Attachment 4: GPS Surveys (9 Pages)

0579166

GPS Survey Data Report for the 119NA, 119N Buildings &116N Stack, Pre Demolition

Project : Job 947

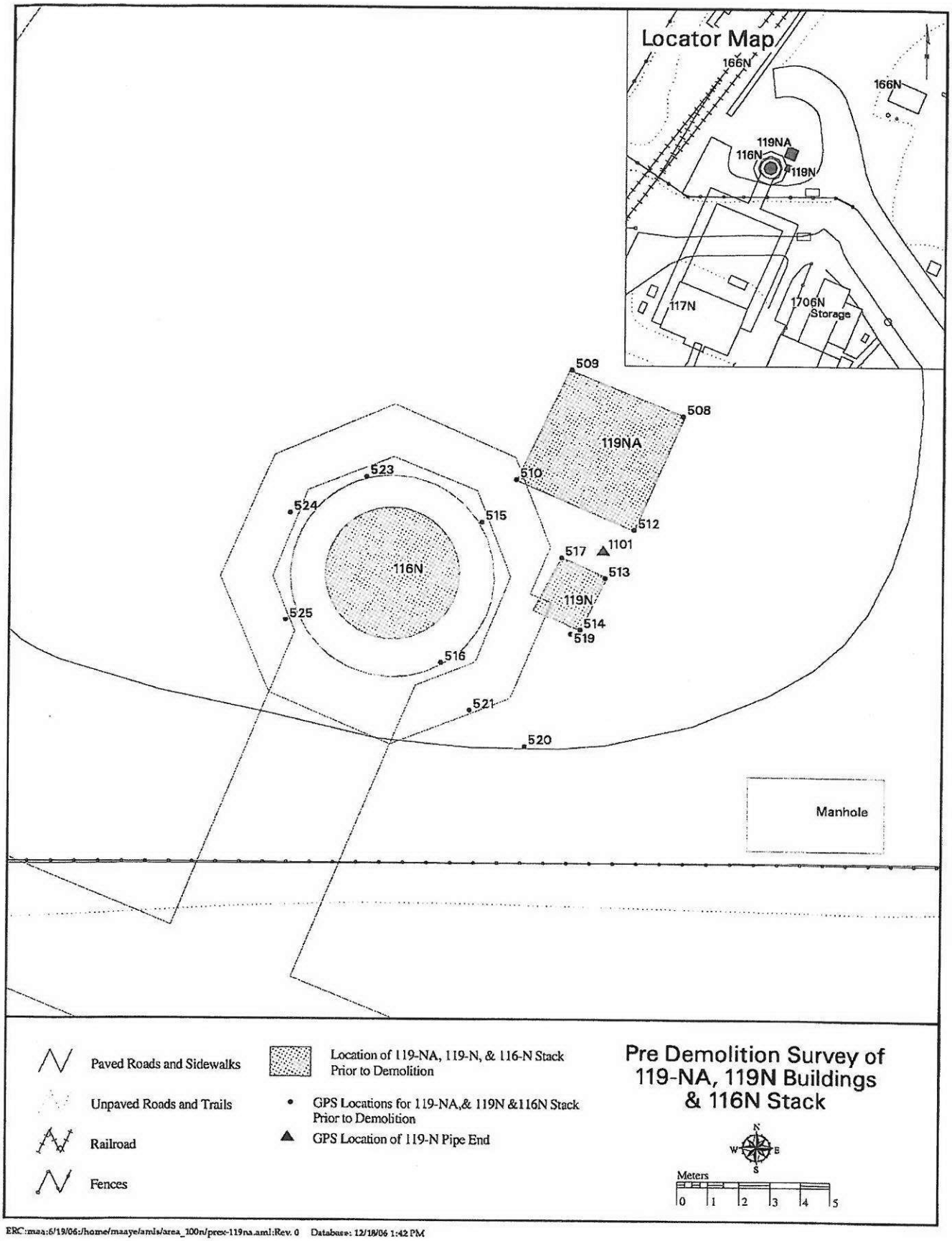
User name	maaye	**Date & Time**	2:03:38 PM 12/18/2006
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAD83	**Geoid Model**	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name/Title: 119N, 119NA, 116N Buildings
Survey Purpose: GPS corners and surrounding features for the 116N & 119N locations
Requested By: Amy Hood
General Site Location: 100-N
Charge Code:
Field Surveyor: Margo Aye
Computer Software Used: Trimble Survey Controller, and Geomatics Office V.11
Survey Equipment Used: 5800
Control Monuments Used: 100N-4
Survey Method: RTK
Estimated Horizontal Precision: .02m
Estimated Vertical Precision: .05m
Fieldwork Start Date 3/22/06
Completion Date: 10/24/06
Notes: EL1571 – Logbook #

Name	Northing	Easting	Elevation	Feature Code	Description
508	149668.801m	571239.355m	139.347m	corn-bldg	
509	149670.314m	571235.763m	139.380m	corn-bldg	
510	149666.678m	571233.968m	139.481m	corn-bldg	
512	149665.029m	571237.839m	139.574m	corn-bldg	
513	149663.437m	571236.889m	139.620m	corn-bldg	
514	149661.719m	571236.065m	139.617m	corn-bldg	
515	149665.260m	571232.809m	139.529m	corn-bldg	
516	149660.617m	571231.531m	139.581m	corn-bldg	
517	149664.111m	571235.430m	139.610m	corn-bldg	

519	149661.584m	571235.733m	139.602m	corn-bldg
520	149657.876m	571234.239m	139.534m	corn-bldg
521	149659.055m	571232.408m	139.585m	corn-bldg
523	149666.743m	571229.090m	139.636m	corn-bldg
524	149665.548m	571226.547m	139.613m	corn-bldg
525	149662.019m	571226.421m	139.580m	corn-bldg
1101	149664.358m	571236.810m	139.323m	pipe-end

Back to top


Locator Map
166N
166N
119NA
116N
119N
117N
1706N
Storage
509
508
119NA
510
523
524
515
512
517
1101
513
116N
119N
525
514
519
516
521
520
Manhole
Paved Roads and Sidewalks
Unpaved Roads and Trails
Railroad
Fences
Location of 119-NA, 119-N, & 116-N Stack Prior to Demolition
GPS Locations for 119-NA,& 119N &116N Stack Prior to Demolition
GPS Location of 119-N Pipe End
Pre Demolition Survey of 119-NA, 119N Buildings & 116N Stack
N
W
E
S
Meters
0
1
2
3
4
5
ERC:maa:6/19/06:/home/maaye/amls/area_100n/prev-119na.aml:Rev. 0 Database: 12/18/06 1:42 PM

0623898

GPS Survey Report for 116N - 100-N-87 Excavation

Project : 116-N

Job 1137

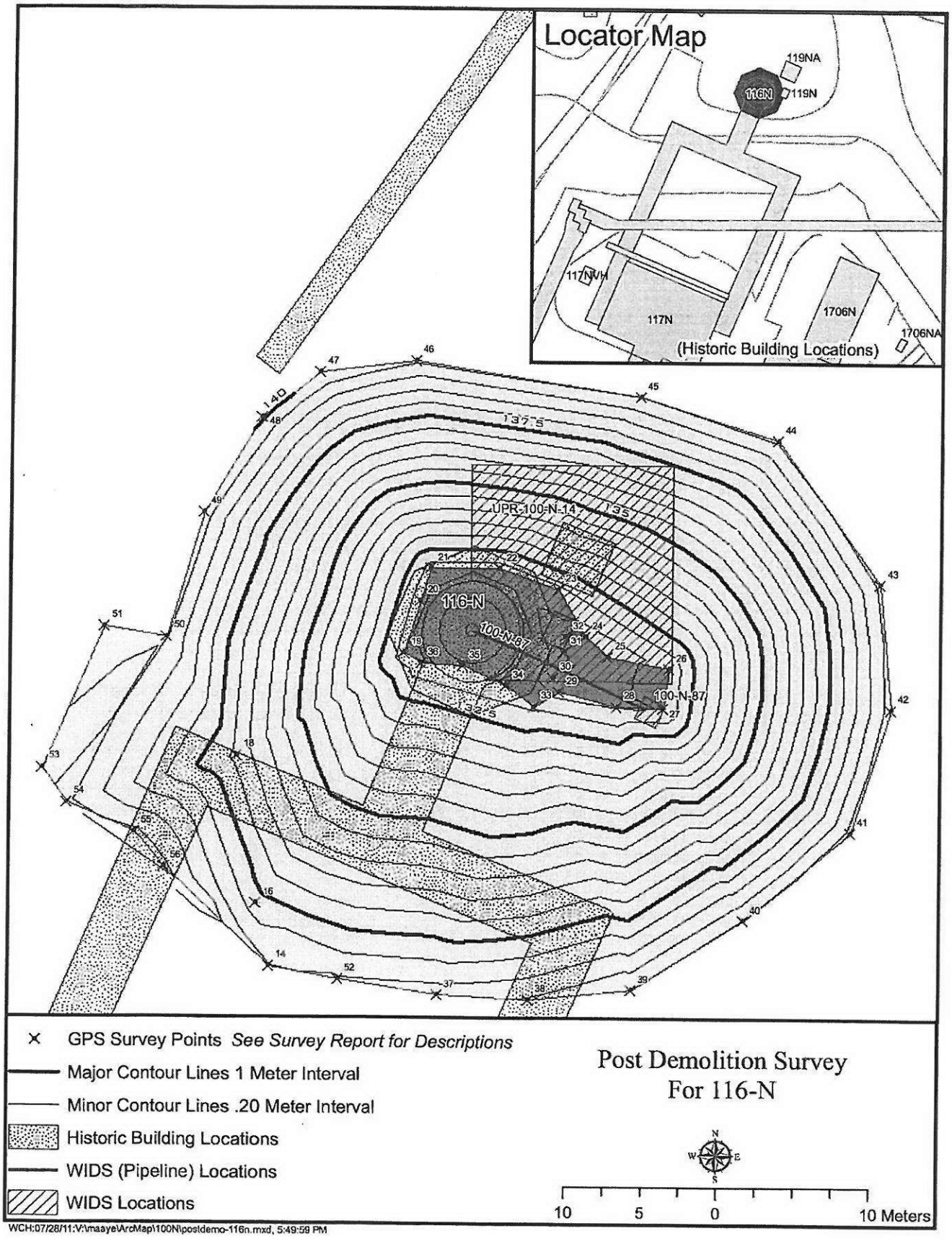
User name	maaye	**Date & Time**	5:11:04 PM 2/9/2011
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD88	**Geoid Model**	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 116N Excavation Footprint 020911
Date: 2/9/2011
Equipment: 5800
Survey Purpose: Map toe and daylight of excavation
Requested By: Toni Faust
Location: 100N
Charge Code:
Field Surveyor: Margo Aye
Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11.4
Survey Equipment Used: 5800
Control Monuments Used:
Survey Method: RTK
Horizontal Precision: .020m
Vertical Precision: .050m
Fieldwork Start Date: 020911
Fieldwork Completion Date: 020911
Notes: LOGBOOK # El-1571-06

Name	Northing	Easting	Elevation	Feature Code	Notes:
1	149617.363m	571238.411m	139.765m	stockpile	
2	149617.190m	571245.879m	139.694m	stockpile	
3	149619.049m	571248.018m	139.698m	stockpile	
4	149619.669m	571250.946m	139.757m	stockpile	
5	149623.156m	571253.044m	139.737m	stockpile	
6	149625.533m	571253.700m	139.785m	stockpile	
7	149628.750m	571252.131m	139.801m	stockpile	
8	149629.355m	571250.601m	139.808m	stockpile	
9	149632.074m	571249.512m	139.787m	stockpile	
10	149634.584m	571247.051m	139.733m	stockpile	
11	149635.608m	571245.021m	139.753m	stockpile	
12	149634.017m	571234.154m	139.239m	stockpile	
13	149625.278m	571232.347m	139.373m	stockpile	
14	149641.375m	571216.753m	138.514m	stockpile2	
16	149645.486m	571215.905m	137.714m	stockpile2	
18	149655.237m	571214.583m	136.865m	top	
19	149662.037m	571225.427m	131.748m	toe	
20	149665.496m	571226.508m	131.681m	toe	
21	149667.616m	571227.176m	131.776m	toe	
22	149667.620m	571231.689m	131.781m	toe	
23	149666.294m	571235.528m	131.888m	toe	
24	149663.166m	571237.264m	131.270m	toe	
25	149661.816m	571238.738m	131.411m	toe	
26	149661.038m	571242.818m	131.593m	toe	
27	149658.419m	571242.430m	131.508m	toe	
28	149658.559m	571239.388m	131.469m	toe	
29	149659.518m	571235.632m	131.284m	toe	
30	149660.462m	571235.226m	131.246m	toe	
31	149662.157m	571235.870m	131.306m	toe	
32	149663.170m	571236.018m	131.288m	toe	
33	149658.535m	571233.994m	131.920m	toe	
34	149659.903m	571232.136m	132.011m	toe	

35	149661.173m	571229.297m	131.775m	toe
36	149661.340m	571226.547m	131.666m	toe
37	149639.484m	571227.768m	138.750m	top
38	149639.217m	571233.767m	139.041m	top
39	149639.870m	571240.423m	139.507m	top
40	149644.474m	571247.763m	139.515m	top
41	149650.328m	571254.770m	139.649m	top
42	149658.480m	571257.380m	139.777m	top
43	149666.706m	571256.641m	139.673m	top
44	149676.151m	571249.890m	139.585m	top
45	149678.988m	571240.783m	139.505m	top
46	149681.318m	571226.072m	139.592m	top
47	149680.519m	571219.820m	139.979m	top
48	149677.510m	571216.073m	140.023m	top
49	149671.232m	571212.352m	139.764m	top
50	149663.060m	571210.031m	139.508m	top
51	149663.722m	571205.953m	139.620m	top
52	149640.508m	571221.240m	138.560m	top
53	149654.417m	571201.952m	139.413m	top
54	149652.113m	571203.560m	139.585m	top
55	149650.149m	571207.983m	139.609m	top
56	149647.858m	571209.892m	139.623m	top

Back to top


Locator Map
119NA
116N
119N
117NVH
117N
1706N
1706NA
(Historic Building Locations)
UPR-100-N-14
116-N
100-N-87
100-N-87
GPS Survey Points See Survey Report for Descriptions
Major Contour Lines 1 Meter Interval
Minor Contour Lines .20 Meter Interval
Historic Building Locations
WIDS (Pipeline) Locations
WIDS Locations
Post Demolition Survey
For 116-N
N
W
E
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10
5
0
10 Meters
WCH:07/28/11:V:\maaye\ArcMap\100N\postdemo-116n.mxd, 5:49:59 PM

D4 Project Facility Completion Form

Post Demo GPS Survey Report for 116-N

Project : 116-N

User name	maaye	**Date & Time**	5:51:56 PM 7/28/2011
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD88	**Geoid Model**	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: Post demo survey for 116N Excavation Footprint 020911
Date: 2/9/2011
Equipment: 5800
Survey Purpose: Map toe and daylight of excavation
Requested By: Toni Foust
Location: 100N
Charge Code:
Field Surveyor: Margo Aye
Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11.4
Survey Equipment Used: 5800
Control Monuments Used:
Survey Method: RTK
Horizontal Precision: .020m
Vertical Precision: .050m
Fieldwork Start Date: 020911
Fieldwork Completion Date: 020911
Notes: Features 1-13 marked toe of stockpile, not included in this report.

Name	Northing	Easting	Elevation	Feature Code	Notes:
14	149641.375m	571216.753m	138.514m	stockpile2	
16	149645.486m	571215.905m	137.714m	stockpile2	
18	149655.237m	571214.583m	136.865m	top	
19	149662.037m	571225.427m	131.748m	toe	
20	149665.496m	571226.508m	131.681m	toe	
21	149667.616m	571227.176m	131.776m	toe	
22	149667.620m	571231.689m	131.781m	toe	
23	149666.294m	571235.528m	131.888m	toe	
24	149663.166m	571237.264m	131.270m	toe	
25	149661.816m	571238.738m	131.411m	toe	
26	149661.038m	571242.818m	131.593m	toe	
27	149658.419m	571242.430m	131.508m	toe	
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34	149659.903m	571232.136m	132.011m	toe	
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38	149639.217m	571233.767m	139.041m	top	

39	149639.870m	571240.423m	139.507m	top
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47	149680.519m	571219.820m	139.979m	top
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54	149652.113m	571203.560m	139.585m	top
55	149650.149m	571207.983m	139.609m	top
56	149647.858m	571209.892m	139.623m	top

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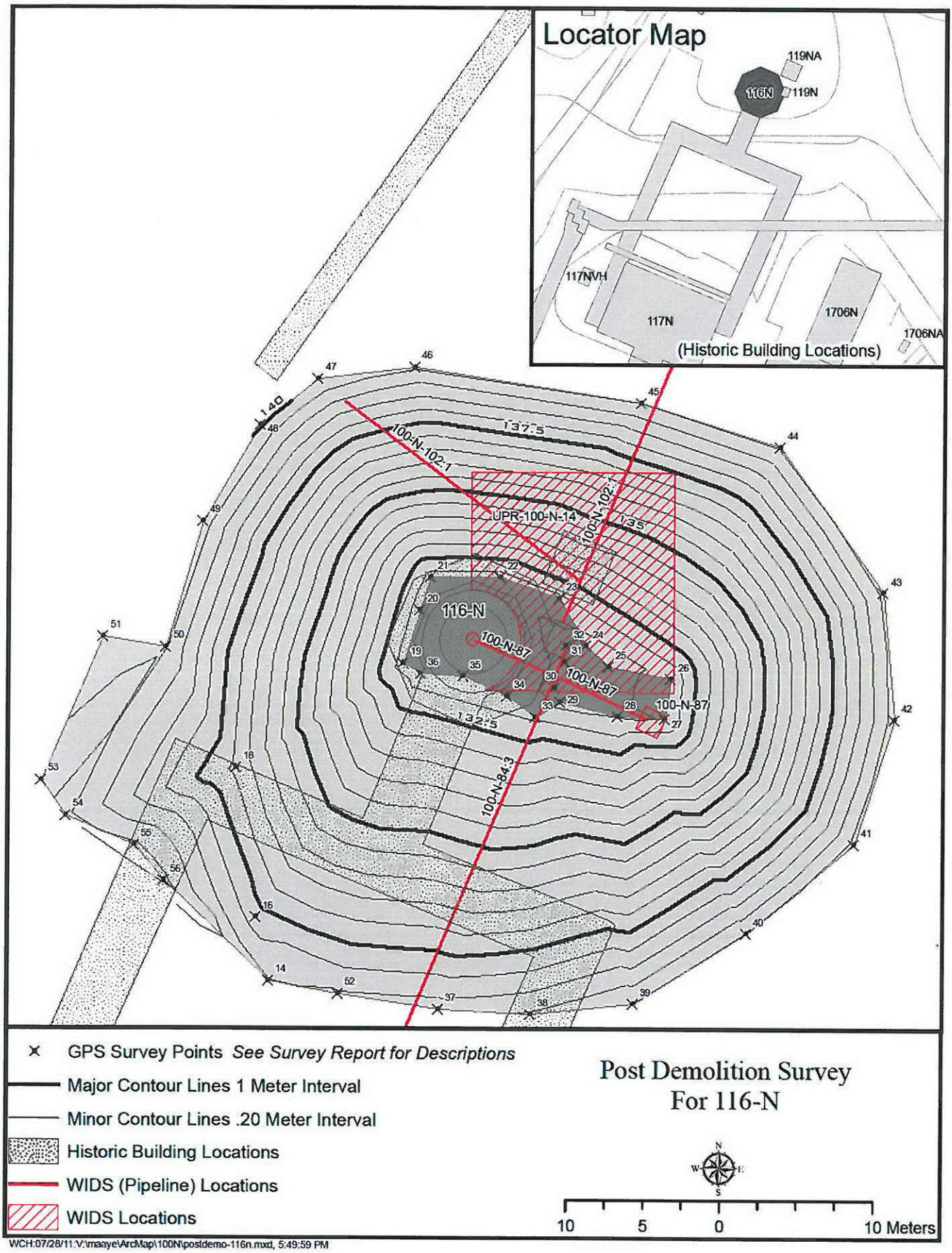

116-N Exhaust Air Stack Completion

Attachment 5: Sampling Determination Form for the 116-N Exhaust Air Stack (SDF-100N-010) (7 Pages)

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100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

Determination Number
SDF-100N-010

A. INSTRUCTIONS

This form must be completed to: 1) document existing data in order to determine if current data is suitable to prove completion of 100-N Ancillary Facilities, or 2) document that site-specific sampling and analyses are needed to provide completion for 100-N Ancillary Facilities.

B. GENERAL INFORMATION

Building Name: Reactor Stack Building Number: 116-N

WIDS Sites Associated or Adjacent:
- Associated: (All WIDS sites listed below are classified as Accepted)
  UPR-100-N-14 (CCN 163277 pg. 2), 100-N-84:3, 100-N-87, and 100-N-102:1.

Other:
The above grade of the 116-N Reactor Stack was explosively demolished in 2008 and the below grade was removed in January of 2011.

C. INFORMATION SOURCES

Available information (list document number for each if applicable):

Historical Site Assessment: N/A
Site Walkdown: N/A
IH Characterization Report: N/A
Radiological Survey: Global Positioning Environmental Radiological Surveys (GPERS): ESR-FRM-11-0118
IHC/FHC Document: N/A
WIDS/SIS: RCC Stewardship Information System (SIS) Facility Summary Report: 116-N, 100-N-84:3, 100-N-87, 100-N-102:1, and UPR-100-N-14
PDSR: Post-Demolition Summary Report for the 116-N Reactor Stack: CCN 163277
Facility Inspection: N/A
Waste Characterization Checklist: N/A
Summary Report: N/A

Other:
- Radiological Survey Record: RSR-100N-08-0814
- Post-Demolition Summary Report for the 119-N Air Sampling Monitor and the 119-NA Air Sampling and Monitoring Facilities: CCN 128270
- 100 Area D4 Project Building Completion Report May 2006-June 2007: WCH-185, Rev. 0
- Project Soils or Below Grade Structures Deferral Form (119-N, 119-NA): ISS-100N-001
- GIS Site Tool Figure 1: (Attached to this Form)
- Draft Verification Work Instruction No. 0100N-WI-G0028 Rev. 0
- FR Excavation Design Drawing 0100N-DD-C0257 (UPR-100-N-14)
- Photograph of 116-N Facility Pre-Demolition, With Time Stamp: WCH-185 pg. 6 (6/11/2002)
- Photographs of 116-N Facility Pre-Demolition, No Time Stamp: CCN 163277 pgs. 6 & 7
- Photographs of 116-N Facility Post-Demolition, No Time Stamp: CCN 163277 pgs. 8 & 9

D. HAZARDOUS SUBSTANCES

Check all that apply:

☐ None ☐ Asbestos containing material ☐ Lead ☐ PCBs/PCB Articles ☐ Oils/Greases

☒ Chemicals List:

☒ Radiological Contamination ☐ Mercury/Mercury Devices

☐ Other:

References/Comments:
- Radiological Contamination: RSR-100N-08-0814

During a radiological characterization survey performed prior to demolition of the facility, 1 out of 40 technical smears yielded detectable removable radiological contamination (RSR-100N-08-0814), slightly greater than the limit of detection specified in the survey.
Chemical contamination was identified in sludge from a sump in the bottom of the stack (CCN163277).
Due to overlap of co-located WIDS sites, the Field Remediation organization, by default, will perform closeout of the soils

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100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

Determination Number SDF-100N-010

within the 116-N facility footprint. Due to this fact, only some of the documents, such as the Post Demolition Report and Building Completion Report, related to hazardous substances at the facility were reviewed for use with this form. The 116-N facility footprint will be closed out with co-located waste sites.

Liquids: ☒ Yes ☐ No

If yes, describe source and nature of liquids:
The facility was an exhaust stack for the 105-N ventilation system (SIS Facility Summary Report for 116-N & CCN 163277 pg. 1). As such, it contained condensate, which accumulated in the stack and was then discharged to a french drain (SIS Facility Summary Report for 100-N-87). Each of the waste sites associated with this facility contained liquids (SIS Facility Summary Reports for 100-N-84:3, 100-N-87, 100-N-102:1, and UPR-100-N-14).

Were the hazardous substances removed from the facility prior to demolition? ☐ Yes ☒ No

As verified by what documentation:
Review of documentation identified the potential for chemically contaminated sludge, and very low levels of radiological contamination to be present in the facility for demolition.

Was there potential for hazardous substances to be introduced into the soils during facility operations or demolition? ☒ Yes ☐ No ☐ N/A

References/Comments:
Removable radiological contamination was detected during a radiological characterization survey prior to demolition of the facility. However, the GPERS survey performed at this location following removal of the facility did not yield any radiological value greater than twice the background radiological level (ESR-FRM-11-0118).
Chemical contamination was identified in sludge from a sump in the bottom of the stack. The sump and its' contents were removed during demolition.
Accordingly, there appears to have been only a small potential for hazardous substance introduction into the soils during facility operation and demolition.

List any hazardous materials left in the building for demolition:
Review of documentation identified the potential for chemically contaminated sludge, and very low levels of radiological contamination to be present in the facility for demolition.

Does review of historical records and process knowledge indicate a potential for radiological or chemical contamination to be present in the facility?
Yes. See above.

Comments:
The above grade portion of the stack was removed in September of 2008 (CCN 163277 pgs. 1 & 4). The below grade portion of the stack and foundation were removed in January of 2011 (CCN 163277 pgs. 1 & 4).

A verification sampling work instruction document has been drafted for waste sites that are co-located with the stack removal excavation (CCN 163277 pg. 2). The Field Remediation organization will be responsible for performing the verification sampling outlined in this work instruction (Draft Verification Work Instruction No. 0100N-WI-G0028 Rev. 0) which includes the waste sites co-located with the 116-N facility (CCN 163277 pg. 2). As evidenced by the GIS Site Tool, the Field Remediation excavation boundary includes the footprint of the facility (GIS Site Tool Figure 1-attached to this form). Accordingly, due to overlap of co-located WIDS sites, the Field Remediation organization will perform closeout of the soils within the 116-N facility footprint. This will be the same case for the soils associated with the nearby 119-N and 119-NA facilities (ISS-100N-001).

E. FIELD OBSERVATIONS

Visual Inspection

Were any stained soils/anomalies discovered during or after demolition of the facility? ☐ Yes ☒ No

References/Comments:
No anomaly or stained soils were discovered during either deactivation or demolition of the facility (CCN 163277 pg. 2).
No indication of stained soils was encountered during review of documentation pertaining to this facility.

Were samples taken of the stained soils/anomalies? ☐ Yes ☐ No ☒ N/A

References/Comments:
No anomaly was discovered and no stained soil was indicated, so this question is not applicable.

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100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

Determination Number
SDF-100N-010

Do results of the samples indicate that chemical contamination exists? ☐ Yes ☐ No ☒ N/A

References/Comments:
No anomaly was discovered and no stained soil was indicated, so this question is not applicable.

Is the area potentially a discovery site? ☐ Yes ☒ No

References/Comments:
No anomaly was discovered and no stained soil was indicated.

Radiological Surveys

Did radiological surveys (GPERS or equivalent) identify contamination? ☐ Yes ☒ No

References/Comments:
Radiological contamination was not identified in the GPERS surveys following removal of the facility (ESR-FRM-11-0118).

Were samples taken of the radiologically contaminated soils? ☐ Yes ☐ No ☒ N/A

References/Comments:
No documentation was found that would suggest that the facility contaminated the adjacent soils, so this question is not applicable.

Is the area potentially a discovery site? ☐ Yes ☒ No

References/Comments:
No documentation was found that would suggest that the facility contaminated the adjacent soils, so this question is not applicable.

Were the contaminated materials removed? ☐ Yes ☐ No ☒ N/A

References/Comments:
No documentation was found that would suggest that the facility contaminated the adjacent soils, so this question is not applicable.

F. WIDS SITES

Were there any WIDS sites affected by D4 activities? ☒ Yes ☐ No

If yes, list the WIDS sites:
100-N-84:3, 100-N-87, 100-N-102:1, and UPR-100-N-14 (CCN 163277 pg. 2)

Were the WIDS site(s) completely removed? ☐ Yes ☒ No

References/Comments:
WIDS sites 100-N-84:3, 100-N-87, and UPR-100-N-14 were completely removed during D4 activities at the 116-N facility (CCN 163277 pg. 2).

WIDS site 100-N-102:1 was partially removed during D4 activities at the 116-N facility (CCN 163277 pg. 2), and will be removed by FR at a later date.

Will the Ancillary Facility Footprint be deferred to FR to be closed out with a co-located Waste Site? ☒ Yes ☐ No

References/Comments:
The 116-N facility footprint will be closed out with co-located waste sites (CCN 163277 pg. 2 & GIS Site Tool Figure 1-attached to this form). Also see Draft Verification Work Instruction No. 0100N-WI-G0028 Rev. 0.

G. COPCs FOR SOILS AND STRUCTURES REMAINING AFTER DEMOLITION

What are the potential contaminants of concern for the remaining below-grade soil?

☒ None ☐ SVOC ☐ VOC ☐ Metals ☐ TPH ☐ Rad ☐ PCBs

☐ Other (Specify): _____

Comments:
The only hazardous substance that appears to have been associated with this facility was radiological contamination (RSR-100N-08-0814). The stack was removed and the subsequent GPERS survey did not yield any radiological value greater than twice the background radiological level (CCN 163277 pgs. 1 & 4, ESR-FRM-11-0118).

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100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

Determination Number
SDF-100N-010

Summary of in-process soil sampling requirements:
N/A

Constituents detected / concentrations / rationale
Consult results from the samples identified below.

Sample Collection Summary
- Drain debris at 116-N: Sample (HEIS) Number J16VJ5 (CCN 163277 Attachment 1)
- Composite at 116-N: Sample (HEIS) Number J16VJ6 (CCN 163277 Attachment 1)
- Scabbled concrete at 116-N: Sample (HEIS) Numbers J180F8, J180F9, J181C1, and J181C2 (CCN 163277 Attachment 1)
- Liquid at 116-N: Sample (HEIS) Numbers J180H3 & J181C6 (CCN 163277 Attachment 1)
- Sediment at 116-N: Sample (HEIS) Number J181C0 (CCN 163277 Attachment 1)
- Insulated piping on 116-N stack: Sample (HEIS) Numbers J10F44 & J10F46 (CCN 128270 Attachment 1)

H. NOTES / ADDITIONAL INFORMATION

☒ Check here if additional information / data / maps / sketches are attached to this form.

If checked, list the attachment(s):
- GIS Site Tool Figure 1: (Attached to this Form)
- Figure 8. Verification Sample Locations Overlay for 100-N-87, UPR-100-N-14, and 100-N-102:1 Waste Sites WIDS Boundaries. Excerpt from Draft Verification Work Instruction No. 0100N-WI-G0028 Rev. 0.
- FR Excavation Design Drawing 0100N-DD-C0257 (UPR-100-N-14)

I. SAMPLING

Are soil samples required to demonstrate that remaining structure or below-grade soils meet cleanup standards? ☐ Yes ☒ No

Based on the above information it was determined that sampling: ☐ will ☒ will not be required in order to demonstrate that cleanup criteria have been met.

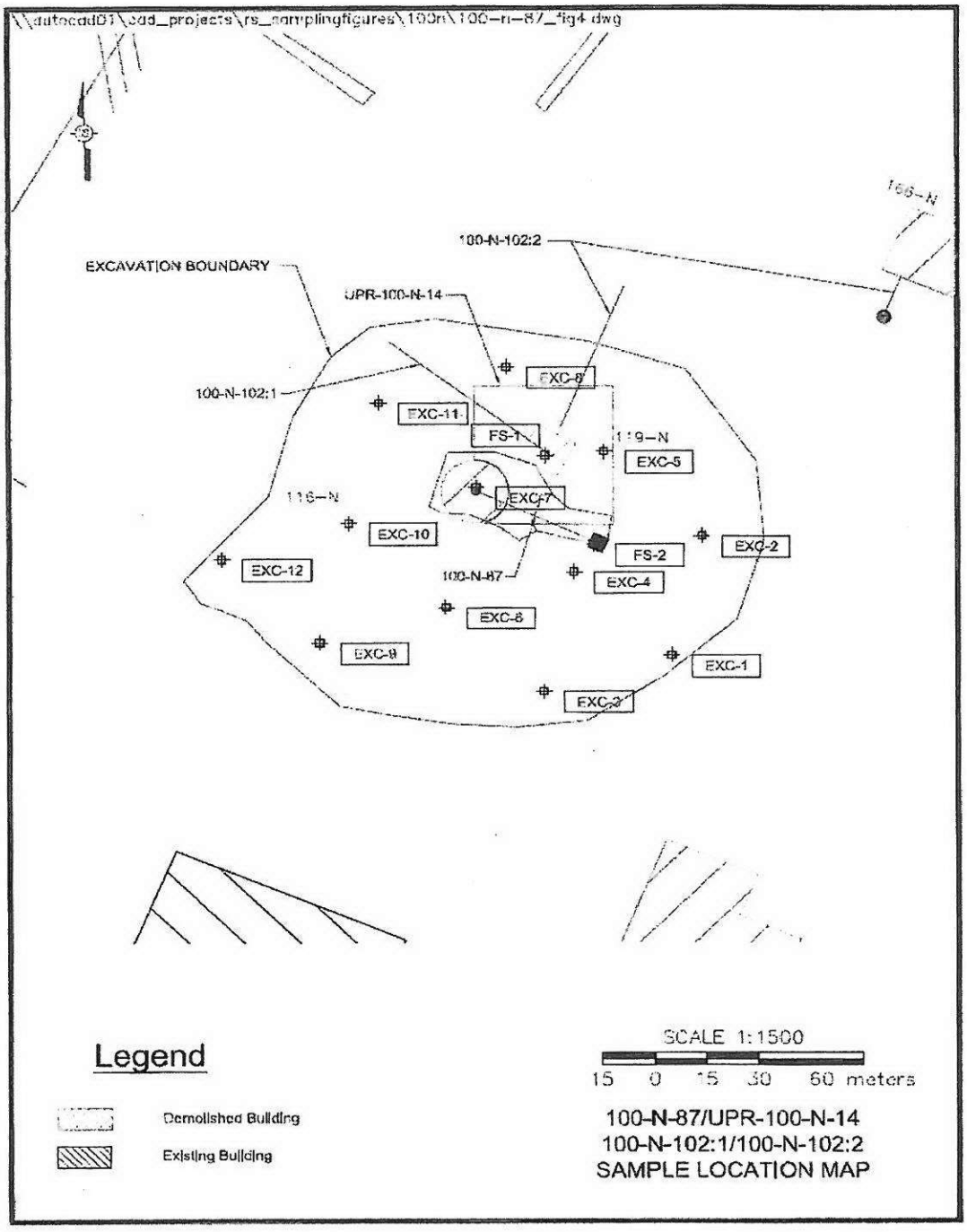
The individual below acknowledges that the review of this facility has been completed. He or she also commits to provide to the Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) any available information that could alter the sampling decision established in this form.

Information Reviewer Signature	Printed Name	Date
David Warren	David Warren	4/30/12

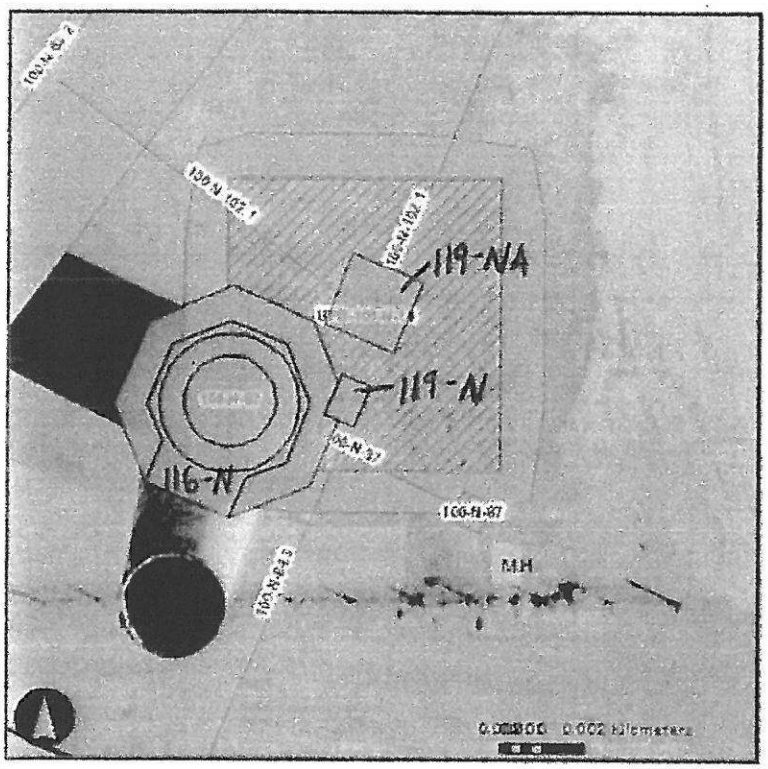
The regulatory representative below agrees with the decision outlined in section I of this form for the indicated facility and supports implementation of that decision based on the information currently available.

DOE Signature	Printed Name R. F Guercia	Date 4/30/2012
Ecology Signature Nina M. Menard	Printed Name NINA M. Menard	Date 5/1/2012

Figure 8. Verification Sample Locations Overlay with 100-N-87, UPR-100-N-14, and 100-N-102:1 Waste Sites WIDS Boundaries.



Map



Buildings

Buildings

WasteSitePoints

- Sitecode Missing in SIS
- Accepted,
- Accepted, Closed Out
- Accepted, Consolidated
- Accepted, Interim Closed Out
- Accepted, No Action
- Accepted, Rejected
- Discovery
- Not Accepted,

WasteSitesLine

- Sitecode Missing in SIS
- Accepted,
- Accepted, Closed Out

WasteSitesLine (continued)

- Accepted, Interim Closed Out
- Accepted, No Action
- Accepted, Rejected
- Discovery,
- Not Accepted,

WasteSitePolys

- Sitecode Missing in SIS
- Accepted,
- Accepted, Closed Out
- Accepted, Consolidated
- Accepted, Deleted From NPL
- Accepted, Interim Closed Out
- Accepted, No Action
- Accepted, Rejected

WasteSitePolys (continued)

- Discovery,
- Not Accepted (Proposed),
- Not Accepted,

Waste Polygon Labels

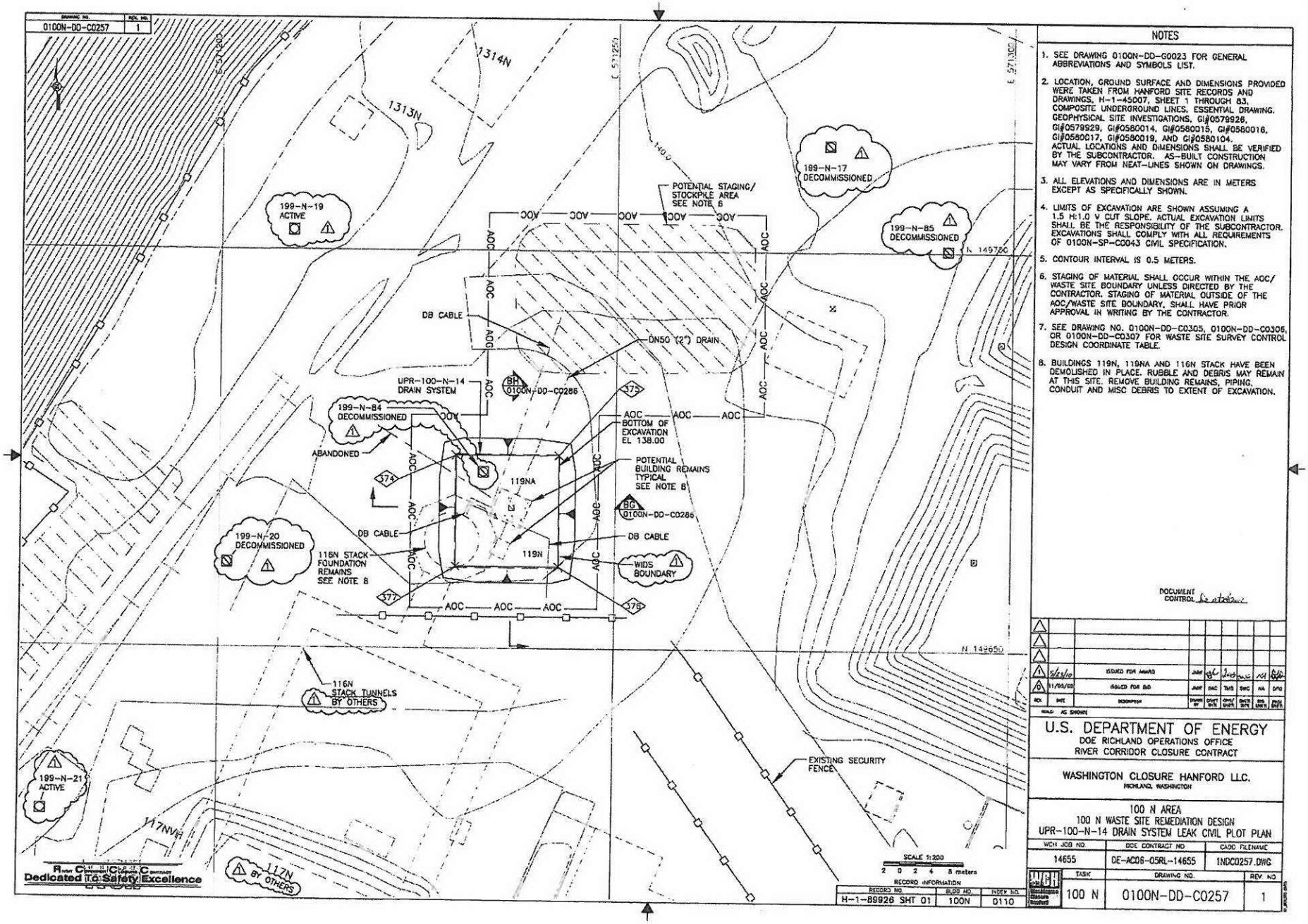
Waste Line Labels

Waste Point Labels

N_EXC_Daylight

Building Labels

D4 Project Facility Completion Form



116-N Exhaust Air Stack Complet